

BRCS2310MFQ

Rev.A Apr.-2024

描述 / Descriptions

SOT23-6 塑封封装 N 道场效应管。

N-CHANNEL MOSFET in a SOT23 -6 Plastic Package.

特征 / Features

$V_{DS}(V)=60V$ $I_D=3A$

$R_{DS(ON)}@10V<90m\Omega$ (Typ. 70mR)

$R_{DS(ON)}@4.5V<110m\Omega$ (Typ. 85mR)

符合 AEC-Q101 标准高可靠性要求，无卤产品。

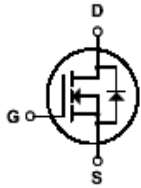
Qualified to AEC-Q101 Standards for High Reliability, HF Product.

用途 / Applications

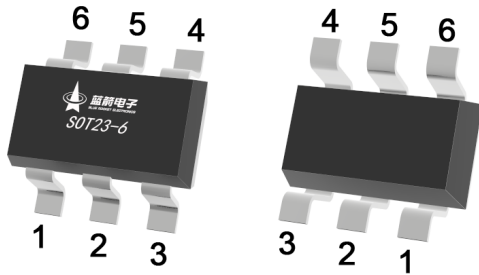
电池管理，高速开关，低功率 DC-DC 转换，满足汽车应用的严格要求。

Battery management, High speed switch, low power DC to DC converter, Meet the stringent requirements of automotive applications.

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



PIN 1 : D PIN 2 : D PIN 3 : G PIN 4 : S PIN 5 : D PIN 6 : D

印章代码 / Marking

见印章说明。

See Marking Instructions.

极限参数 / Absolute Maximum Ratings(Ta=25°C)

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Drain-Source Voltage	V _{DSS}	60	V
Gate-Source Voltage	V _{GSS}	±20	V
Drain Current – Continuous	I _D	3.0	A
Pulsed Drain Current	I _{DM}	15	A
Power Dissipation	P _D	0.9	W
Storage Temperature Range	T _{stg}	-55~150	°C
Maximum Junction-to-Ambient	R _{JA}	139	°C/W

电性能参数 / Electrical Characteristics(Ta=25°C)

参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Drain–Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0 I _D =10μA	60	68		V
Zero Gate Voltage Drain Current	I _{DSS}	V _{GS} =0 V _{DS} =60V			1.0	μA
Gate–Body Leakage.	I _{GSS}	V _{GS} =±20V V _{DS} =0V			±100	nA
Static Drain–Source On–Resistance	R _{DS(on)1}	V _{GS} =10V I _D =3A		73	90	mΩ
	R _{DS(on)2}	V _{GS} =4.5V I _D =3A		85	110	mΩ
Drain–Source Diode Forward Voltage	V _{SD}	V _{GS} =0V I _D =1A		0.75	1.2	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} I _D =50μA	1.0	1.4	3.0	V
Maximum Body-Diode Continuous Current	I _S				3	A
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =25V f=1MHz		415		pF
Output Capacitance	C _{oss}			37		
Reverse Transfer Capacitance	C _{rss}			25		
Gate resistance	R _g	V _{GS} =0V, f=1MHz V _{DS} =0V		3.4		Ω
Total Gate Charge	Q _{g(10V)}	V _{GS} =10V, V _{DS} =30V I _D =3.0A		10		nC
Total Gate Charge	Q _{g(4.5V)}			5		
Gate Source Charge	Q _{gs}			2		
Gate Drain Charge	Q _{gd}			3		
Turn–On Delay Time	t _{d(on)}	V _{GS} =10V, V _{DS} =30V R _L =7Ω, R _{GEN} =3Ω		7		ns
Turn–On Rise Time	t _r			12		
Turn–Off Delay Time	t _{d(off)}			16		
Turn–Off Fall Time	t _f			11		

电参数曲线图 / Electrical Characteristic Curve

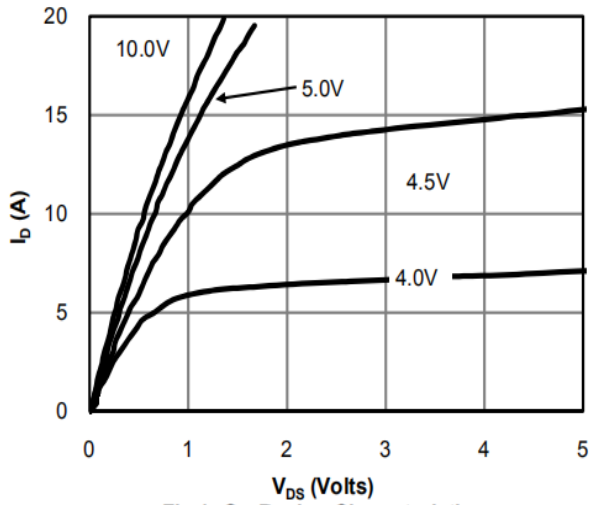


Fig 1: On-Region Characteristics

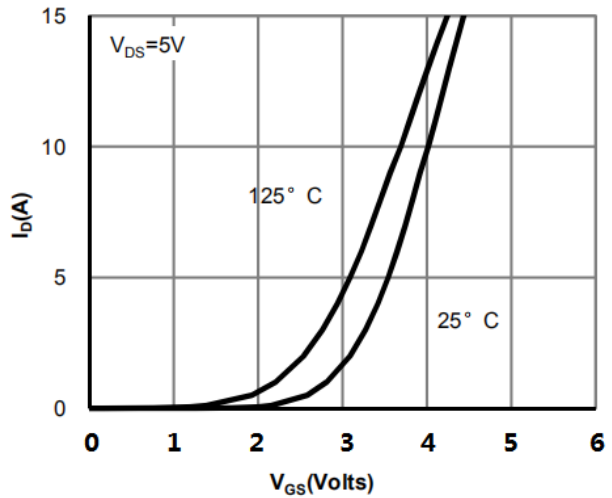


Figure 2: Transfer Characteristics

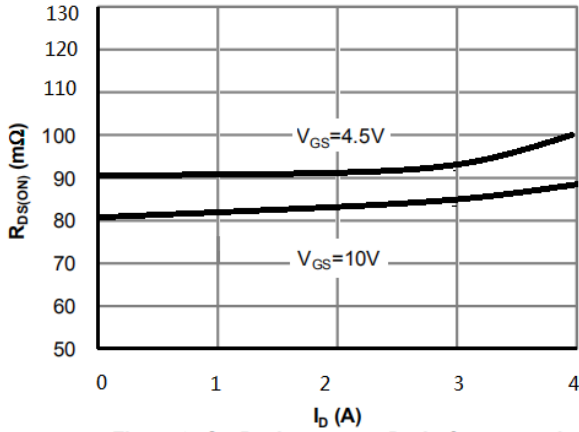


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

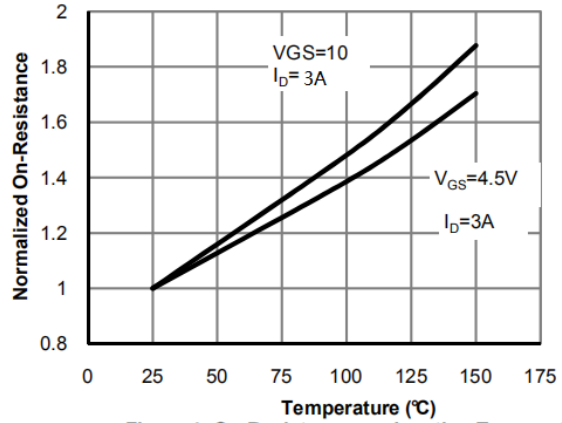


Figure 4: On-Resistance vs. Junction Temperature

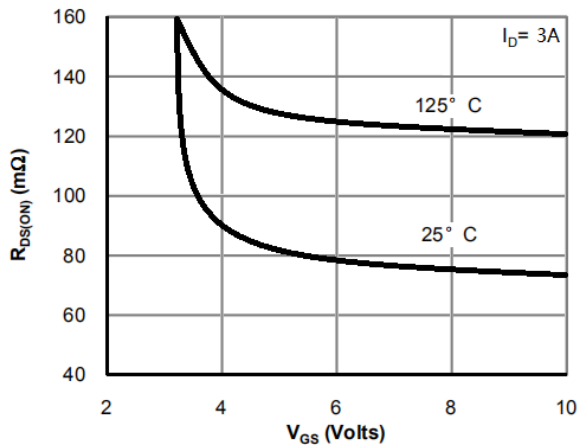


Figure 5: On-Resistance vs. Gate-Source Voltage

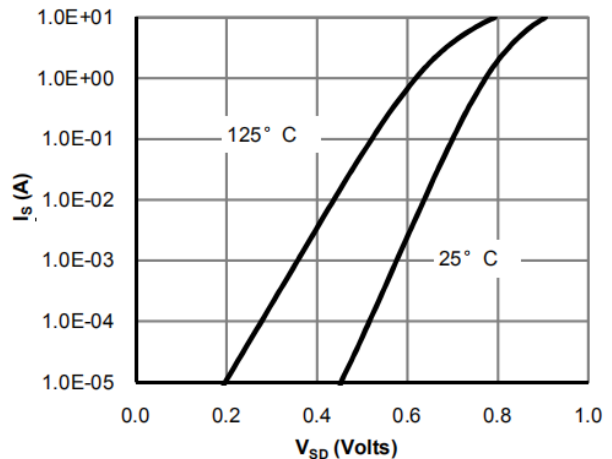


Figure 6: Body-Diode Characteristics

电参数曲线图 / Electrical Characteristic Curve

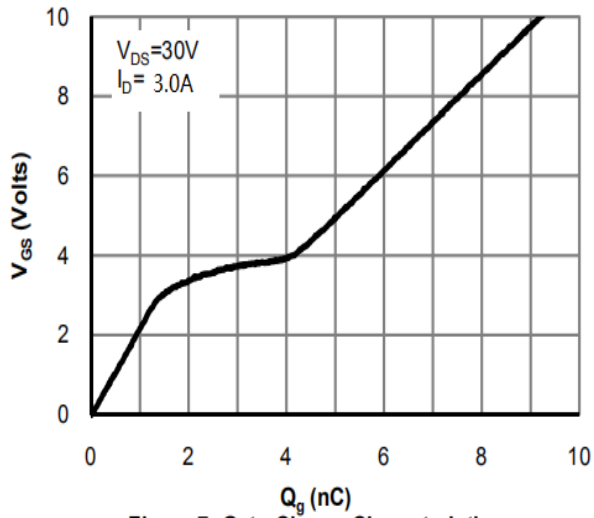


Figure 7: Gate-Charge Characteristics

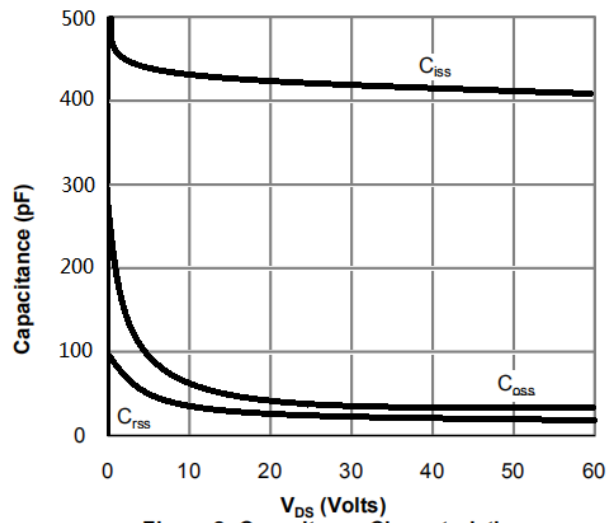


Figure 8: Capacitance Characteristics

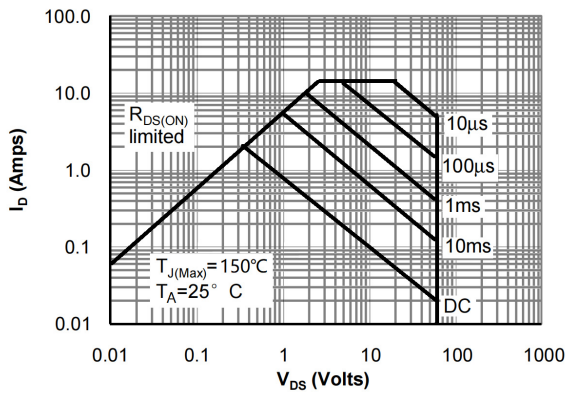


Figure 9: Maximum Forward Biased Safe Operating Area

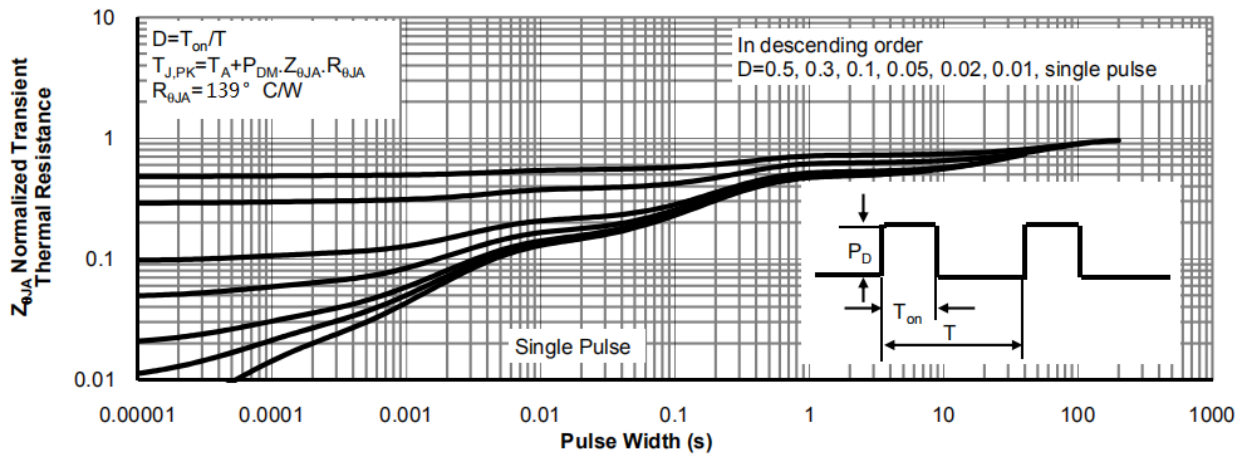
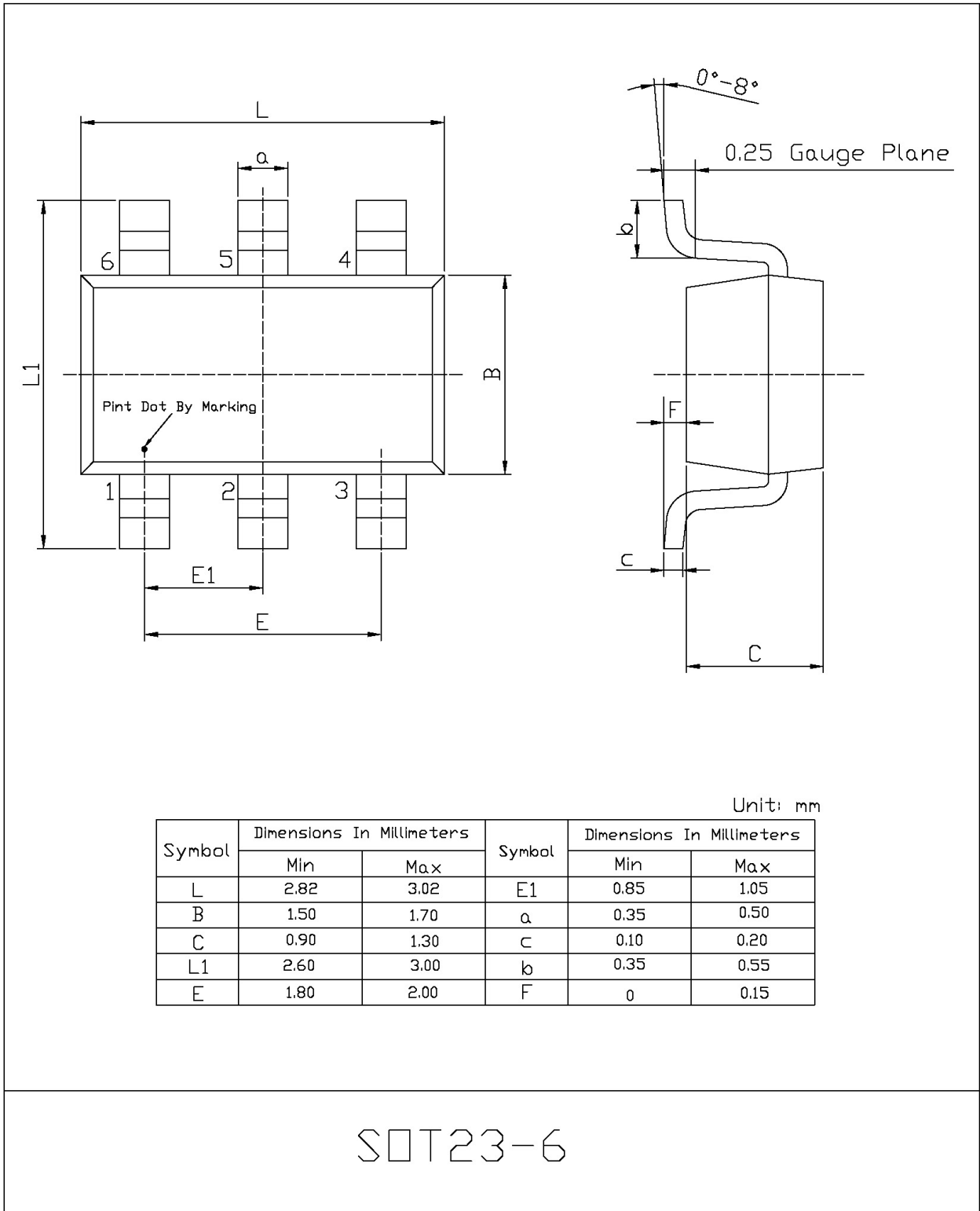
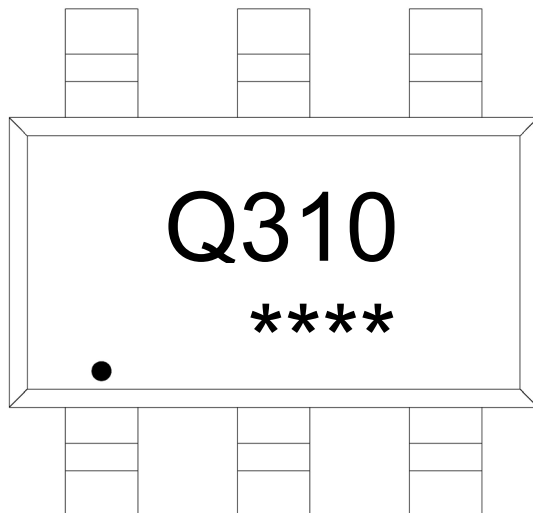


Figure 10 Normalized Maximum Transient Thermal Impedance

外形尺寸图 / Package Dimensions



印章说明 / Marking Instructions



说明：

Q： 为汽车无卤产品标识

310： 为型号代码

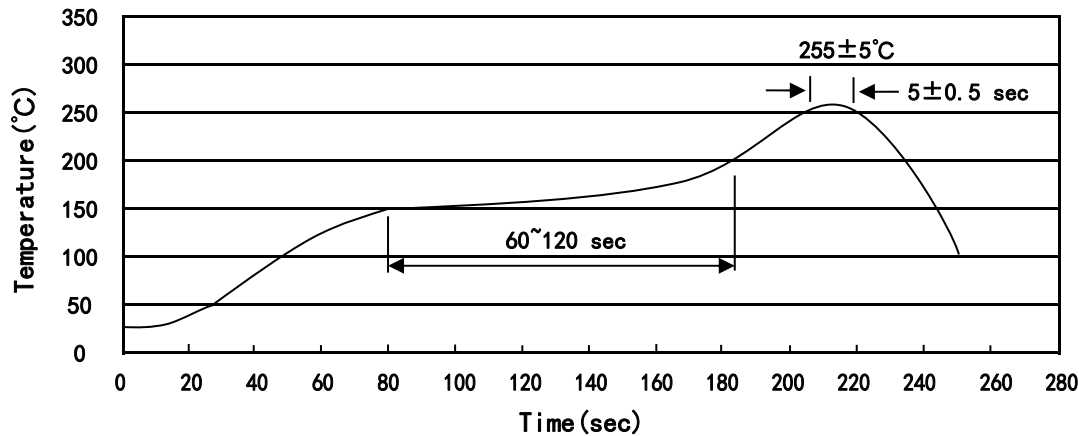
****： 为生产批号代码，随生产批号变化

Note:

Q: Automobile halogen-free product Code

310: Product Type Code

****: Lot No. Code, code change with Lot No

回流焊温度曲线图(无铅) / Temperature Profile for IR Reflow Soldering(Pb-Free)


说明：

- 1、预热温度 150~200°C，时间 60~120sec;
- 2、峰值温度 255±5°C，时间持续为 5±0.5sec;
- 3、焊接制程冷却速度为 2~10°C/sec.

Note:

- 1.Preheating:150~200°C, Time:60~120sec.
- 2.Peak Temp.:255±5°C, Duration:5±0.5sec.
3. Cooling Speed: 2~10°C/sec.

耐焊接热试验条件 / Resistance to Soldering Heat Test Conditions

温度：260±5°C

时间：10±1 sec.

Temp.:260±5°C

Time:10±1 sec

包装规格 / Packaging SPEC.

卷盘包装 / REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm ³)		
	Units/Reel 只/卷盘	Reels/Inner Box 卷盘/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Reel	Inner Box 盒	Outer Box 箱
SOT23-5/6	3,000	10	30,000	4	120,000	7" ×8	210×205×205	445×435×230

使用说明 / Notices